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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/933,705	08/22/2001	Yukio Michishita	251768/00	6227

21254 7590 07/27/2005

MCGINN & GIBB, PLLC
8321 OLD COURTHOUSE ROAD
SUITE 200
VIENNA, VA 22182-3817

EXAMINER	
BELLO, AGUSTIN	

ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 07/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

SM

Office Action Summary	Application No.	Applicant(s)	
	09/933,705	MICHISHITA, YUKIO	
	Examiner	Art Unit	
	Agustin Bello	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 6, 12-15, 17, 19-21, and 23-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Yoneyama (U.S. Patent No. 6,301,404).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claims 1, 13, and 23, Yoneyama teaches an optical transmission path monitoring system for monitoring optical transmission paths by wavelength-division multiplexing probe lights with signal lights of a wavelength division multiplexing optical transmission system, said optical transmission path monitoring system comprising: an optical fiber monitoring probe light (λ_{sv1} throughout) for monitoring optical fibers which constitute some parts of said optical transmission paths and an optical amplifier-repeater monitoring probe light

(λ_{sv2} throughout) for monitoring optical amplifier-repeaters which constitute other parts of said optical transmission paths (see also column 11 lines 13-20, 35-40).

Regarding claim 12, Yoneyama teaches probe light generating means (reference numeral 47a in Figure 8) for generating said optical fiber monitoring probe lights and optical amplifier-repeater monitoring probe lights, multiplexing means (reference numeral 45a in Figure 8) for multiplexing said probe lights with signal lights and delivering the multiplexed lights to said outward optical transmission path (reference numeral 41a in Figure 8), loop back means (reference numeral 30 in Figure 8) for branching reflected light components generating from said probe lights from said outward optical transmission path and coupling the branched lights with signal lights on said inward optical transmission path, and optical detecting means (reference numeral 47a in Figure 8) detecting said light components transmitted by said loop back means and outputted from said inward optical transmission path, said optical transmission paths are monitored on the basis of the output of said optical detecting means (column 11 lines 13-19).

Regarding claim 2, 14, and 24, Yoneyama teaches a wavelength of said optical fiber monitoring probe light is such a wavelength as makes a wavelength dispersion of group delays over a full length of said optical transmission paths negative (e.g. to the left of the zero dispersion wavelength as noted in Figure 9), and a wavelength of said optical amplifier-repeater monitoring probe light is such a wavelength as makes the wavelength dispersion of said group delays over the full length of the optical transmission paths positive (e.g. to the right of the zero dispersion wavelength as noted in Figure 10).

Regarding claim 3, 15, and 25, Yoneyama teaches that said optical transmission paths have a zero dispersion wavelength (inherent in all fibers) which makes a wavelength dispersion

of group delays over a full length of said optical transmission paths zero; a wavelength of said optical fiber monitoring probe light is on a shorter wavelength side than said zero dispersion wavelength (as noted in Figure 9), and a wavelength of said optical amplifier-repeater monitoring probe light is on a longer wavelength side than said zero dispersion wavelength (as noted in Figure 10).

Regarding claims 6 and 17, Yoneyama teaches that said optical detecting means optically detects by a coherent light detecting system (column 11 line 26) light components transmitted by said loop back means and outputted from said inward optical transmission path.

Regarding claim 19, Yoneyama appears to teach said optical detecting means optically detects by a direct light detecting system (reference numeral 47a in Figure 8) said light components transmitted by said loop back means and outputted from said inward optical transmission path.

Regarding claims 20-21, Yoneyama teaches that said loop back means comprises two 2x2 optical couplers (reference numerals 32a, 32b, 33a, 33b, in Figure 7) inserted into said optical transmission paths and mutually connected by one each of optical terminals, and further comprising light reflecting means (reference numeral 32d, 32e, 33d, 33e in Figure 7).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 4-5, 7-11, 16, 18, 22, 26-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoneyama.

Regarding claims 4, 16, and 26, Yoneyama teaches that said wavelength division multiplexing optical transmission system has two-core two-way optical transmission paths (e.g. "UP" "DOWN" paths shown in Figure 8), and is provided with a total of four probe lights (e.g. λ_{sv1} and λ_{sv2} from the left terminal in Figure 8, λ_{svX} and λ_{svY} from the right terminal in Figure 8) including said optical fiber monitoring probe light and said optical amplifier-repeater monitoring probe light delivering to each of the two outward optical transmission paths which said two-core two-way optical transmission paths have. Yoneyama differs from the claimed invention in that Yoneyama fails to specifically teach that every one of said four probe lights has a different wavelength from others. However, Yoneyama suggests as much by including two distinct transmission line supervisory circuits (reference numerals 47a, 47b in Figure 8) and by disclosing "multiple supervisory signals with different wavelengths" (column 15 lines 49-52). Given the design of Yoneyama's system wherein supervisory signals traverse the same paths in different directions, one skilled in the art would clearly have recognized the necessity for making each of the four supervisory signals different wavelengths. One skilled in the art would have been motivated to do so in order to avoid interference between each of the cross propagating supervisory wavelengths. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to allow every one of said four probe lights to have a different wavelength from others.

Regarding claims 5 and 27 Yoneyama teaches probe light generating means (reference numeral 47a in Figure 8) for generating said optical fiber monitoring probe lights and optical

amplifier-repeater monitoring probe lights, multiplexing means (reference numeral 45a in Figure 8) for multiplexing said probe lights with signal lights and delivering the multiplexed lights to said outward optical transmission path (reference numeral 41a in Figure 8), loop back means (reference numeral 30 in Figure 8) for branching reflected light components generating from said probe lights from said outward optical transmission path and coupling the branched lights with signal lights on said inward optical transmission path, and optical detecting means (reference numeral 47a in Figure 8) detecting said light components transmitted by said loop back means and outputted from said inward optical transmission path, said optical transmission paths are monitored on the basis of the output of said optical detecting means (column 11 lines 13-19).

Regarding claim 28, Yoneyama teaches that said optical detecting means optically detects by a coherent light detecting system (column 11 line 26) light components transmitted by said loop back means and outputted from said inward optical transmission path.

Regarding claims 7, 18, and 29, Yoneyama differs from the claimed invention in that Yoneyama fails to specifically teach a coherent homodyne light detection system wherein light partially branched from said optical fiber monitoring probe light is used as local oscillating light. However, coherent homodyne detection systems such as that claimed by the applicant are very well known in the art. Furthermore, the applicant discloses that coherent light detection systems can be used in the system (column 11 line 26). One skilled in the art would have been motivated to use a coherent homodyne light detection system wherein light partially branched from said optical fiber monitoring probe light is used as a local oscillating light in order to detect a difference between the received optical fiber monitoring probe light and the optical monitoring probe light emitted into the system, thereby allowing a measure of system parameters.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to use a coherent homodyne light detection system wherein light partially branched from said optical fiber monitoring probe light is used as local oscillating light.

Regarding claims 8 and 30, Yoneyama appears to teach said optical detecting means optically detects by a direct light detecting system (reference numeral 47a in Figure 8) said light components transmitted by said loop back means and outputted from said inward optical transmission path.

Regarding claims 9-10, Yoneyama teaches that said loop back means comprises two 2x2 optical couplers (reference numerals 32a, 32b, 33a, 33b, in Figure 7) inserted into said optical transmission paths and mutually connected by one each of optical terminals, and further comprising light reflecting means (reference numeral 32d, 32e, 33d, 33e in Figure 7).

Regarding claims 11, 22, and 31, Yoneyama differs from the claimed invention in that Yoneyama fails to specifically teach means for alternatively selecting said optical fiber monitoring probe lights and optical amplifier-repeater monitoring probe lights for supply said outward optical transmission path, and monitoring the optical fibers and the optical amplifier-repeaters on a time-division basis. However, time division multiplexing of optical signals is well known in the art and would have been obvious to one skilled in the art at the time the invention was made. One skilled in the art would have been motivated to incorporate time division multiplexing in to the system of Yoneyama in order to limit the amount of bandwidth occupied by the monitoring signals.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (571) 272-3026. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AB

A. Bello

AGUSTIN BELLO
PATENT EXAMINER